Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (previously presented) A method of altering modem transmission characteristics, comprising:

setting a modem to transmit on a first upstream channel on a first frequency using first transmission characteristics;

monitoring a quality of upstream transmissions from the modem on the first upstream channel; and

setting the modem to transmit on a second different upstream channel on a second different frequency using second transmission characteristics based on the monitored quality.

2.   (currently amended) The method of claim 1, ~~wherein~~ where setting the modem to transmit on a second different upstream channel further comprises:

determining whether the quality of the modem upstream transmissions is inadequate; and

setting the second transmission characteristics to more robust transmission characteristics based on the determination.

3.   (currently amended) The method of claim 1, ~~wherein~~ where setting the modem to transmit on a second different upstream channel further comprises:

determining whether the quality of the modem upstream transmissions is greater than a threshold; and

setting the second transmission characteristics to better performing transmission characteristics based on the determination.

4.   (currently amended) The method of claim 2, ~~wherein~~ where the first transmission characteristics comprise at least one of 16 quadrature amplitude modulation (16QAM), 8QAM, 32QAM, or 64QAM, and the second transmission characteristics comprise quadrature phase shift keying (QPSK) modulation.

5.   (currently amended) The method of claim 3, ~~wherein~~ where the first transmission characteristics comprise quadrature phase shift keying (QPSK) modulation and the second transmission characteristics comprise at least one of 16 quadrature amplitude modulation (16QAM), 8QAM, 32QAM, or 64QAM.

6.   (currently amended) The method of claim 1, ~~wherein~~ where the first upstream channel comprises a first time division of the first frequency.

7.   (currently amended) The method of claim 6, ~~wherein~~ where the second different upstream channel comprises a second time division of the second different frequency.

8.   (currently amended) The method of claim 1, ~~wherein~~ where the quality comprises at least one of bit-error-rate or signal-to-noise ratio.

9.   (currently amended) A cable modem termination system, comprising:

a memory ~~configured~~ to store instructions;

a communication interface ~~configured~~ to:

receive transmissions comprising first transmission characteristics from a

modem on a first upstream channel on a first frequency, and

measure a quality of the received upstream transmissions from the

modem; and

a processor ~~configured~~ to execute the instructions in the memory to:

monitor the measured quality of the received transmissions, and

send a message, via the communication interface, instructing the modem

to transmit on a second different upstream channel on a second different

frequency using second transmission characteristics based on the monitored

quality.

10.   (currently amended) The system of claim 9, the processor further ~~configured~~ to:

determine whether the quality of the modem upstream transmissions is

inadequate; and

set the second transmission characteristics to more robust transmission

characteristics based on the determination.

11.   (currently amended) The system of claim 9, the processor further ~~configured~~ to:

determine whether the quality of the modem upstream transmissions is greater

than a threshold; and

set the second transmission characteristics to better performing transmission

characteristics based on the determination.

12.   (currently amended) The system of claim 10, ~~wherein~~ where the first

transmission characteristics comprise at least one of 16 quadrature amplitude modulation

(16QAM), 8QAM, 32QAM, or 64QAM, and the second transmission characteristics

comprise quadrature phase shift keying (QPSK) modulation.

13.   (currently amended) The system of claim 11, ~~wherein~~ where the first

transmission characteristics comprise quadrature phase shift keying (QPSK) modulation

and the second transmission characteristics comprise at least one of 16 quadrature

amplitude modulation (16QAM), 8QAM, 32QAM, or 64QAM.

14.   (currently amended) The system of claim 9, ~~wherein~~ where the first upstream

channel comprises a first time division of the first frequency.

15.   (currently amended) The system of claim 14, ~~wherein~~ where the second different

upstream channel comprises a second time division of the second different frequency.

16.   (currently amended) The system of claim 9, ~~wherein~~ where the quality comprises

at least one of bit-error-rate or signal-to-noise ratio.

17.   (previously presented) A method of controlling transmission characteristics of cable modems, comprising:

monitoring upstream transmission quality of one or more cable modems; and

commanding at least one of the one or more cable modems to change its transmission characteristics based on the monitored quality, including changing from a first preamble length to a second different preamble length.

18.   (original) The method of claim 17, further comprising:

commanding the at least one of the one or more cable modems to transmit on a different upstream virtual channel based on the monitored quality.

19.   (currently amended) The method of claim 17, ~~wherein~~ where commanding at least one of the one or more modems to change its transmission characteristics comprises:

commanding the at least one of the one or more modems to change its modulation based on the monitored quality.

20.   (currently amended) The method of claim 19, ~~wherein~~ where commanding the at least one of the one or more modems to change its modulation further comprises:

commanding the at least one of the one or more modems to change from quadrature phase shift keying (QPSK) modulation to at least one of 16 quadrature amplitude modulation (16QAM), 8QAM, 32QAM, or 64QAM.

21.   (currently amended) The method of claim 17, ~~wherein~~ <u>where</u> the quality comprises at least one of bit-error-rate or signal-to-noise ratio.

22.   (currently amended) A cable modem termination system, comprising:

a memory ~~configured~~ to store instructions; and

a processor ~~configured~~ to execute the instructions in the memory to:

monitor upstream transmission quality of one or more cable modems, and

instruct at least one of the one or more cable modems to change its transmission characteristics, including changing from a first time division multiplexed timeslot size to a second different time division multiplexed timeslot size, when the monitored quality meets a specified criteria.

23.   (original) The system of claim 22, further comprising:

commanding the at least one of the one or more cable modems to transmit on a different upstream virtual channel when the monitored quality meets the specified criteria.

24.   (currently amended) The system of claim 22, ~~wherein~~ <u>where</u> commanding at least one of the one or more modems to change its transmission characteristics comprises:

commanding the at least one of the one or more modems to change its modulation when the monitored quality meets the specified criteria.

25.   (currently amended) The system of claim 24, ~~wherein~~ where commanding the at

least one of the one or more modems to change its modulation further comprises:

commanding the at least one of the one or more modems to change from

quadrature phase shift keying (QPSK) modulation to at least one of 16 quadrature

amplitude modulation (16QAM), 8QAM, 32QAM or 64QAM.

26.   (currently amended) The system of claim 22, ~~wherein~~ where the quality

comprises at least one of bit-error-rate or signal-to-noise ratio.

27.   (currently amended) A method of changing transmission characteristics at a

modem in a cable modem system, comprising:

transmitting, by the modem, on a first channel on a first frequency;

receiving, by the modem, a command to select different upstream transmission

characteristics;

selecting, by the modem, the different upstream transmission characteristics in

accordance with the command; and

transmitting, by the modem, on a second different upstream channel on a second

different frequency using the different upstream transmission characteristics.

28.   (original) The method of claim 27, further comprising:

receiving a plurality of messages, each message describing different transmission

characteristics.

29.   (currently amended) The method of claim 28, ~~wherein~~ <u>where</u> the command indicates the use of one of the plurality of messages for selecting different upstream transmission characteristics.

30.   (currently amended) A cable modem, comprising:

a memory ~~configured~~ to store instructions;

a communication interface ~~configured~~ to receive an instruction to select different upstream transmission characteristics; and

a processing unit ~~configured~~ to:

transmit on a first upstream channel on a first frequency,

select the different upstream transmission characteristics in accordance with the instruction, and

initiate transmission on a second different upstream channel on a second different frequency using the different upstream transmission characteristics.

31.   (currently amended) The modem of claim 30, the communication interface further ~~configured~~ to:

receive a plurality of messages, each message describing different transmission characteristics.

32.   (currently amended) The modem of claim 31, ~~wherein~~ <u>where</u> the instruction indicates the use of one of the plurality of messages for selecting different upstream transmission characteristics.

33.   (previously presented) A method of changing virtual upstream channels in a cable modem system, comprising:

monitoring upstream signal qualities associated with one or more cable modems; and

selectively switching at least one of the one or more cable modems between different virtual upstream channels with different frequencies based on the signal quality monitoring.

34.   (currently amended) The method of claim 33, ~~wherein~~ where each of the virtual upstream channels is associated with different cable modem transmission characteristics.

35.   (currently amended) The method of claim 34, ~~wherein~~ where a first of the different cable modem transmission characteristics comprises quadrature phase shift keying (QPSK) modulation.

36.   (currently amended) The method of claim 35, ~~wherein~~ where a second of the different cable modem transmission characteristics comprises at least one of 16 quadrature amplitude modulation (16QAM), 8QAM, 32QAM, or 64QAM .

37.   (currently amended) A cable modem termination system, comprising:

a memory ~~configured~~ to store instructions;

a communication interface ~~configured~~ to:

measure signal qualities of upstream transmissions associated with one or

more cable modems; and

a processor ~~configured~~ to execute the instructions in the memory to:

monitor the measured upstream signal qualities, and

selectively command at least one of the one or more cable modems to

switch between different virtual upstream channels based on the signal quality

monitoring.

38.   (currently amended) The system of claim 37, ~~wherein~~ where each of the virtual

upstream channels is associated with different cable modem transmission characteristics.

39.   (currently amended) The system of claim 38, ~~wherein~~ where a first of the

different cable modem transmission characteristics comprises quadrature phase shift

keying (QPSK) modulation.

40.   (currently amended) The system of claim 39, ~~wherein~~ where a second of the

different cable modem transmission characteristics comprises at least one of 16

quadrature amplitude modulation (16QAM), 8QAM, 32QAM, or 64QAM.

41.   (previously presented) A system for controlling transmission characteristics of a

cable modem, comprising:

means for sending an upstream channel descriptor to one or more cable modems;

means for monitoring upstream transmission quality of the one or more cable modems; and

means for commanding at least one of the one or more cable modems to change its transmission characteristics, including changing from a first data block size to a second different data block size, based on the sent upstream channel descriptor and the monitored quality.